THE MANAGEMENT OF DOMESTIC WASTES

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Keywords: management, wastes, sustainable development, environment

Abstract

The paper presents the necessity of domestic waste management in the context of a sustainable development that requires the selection, gathering, recycling and valorization of the wastes in view of the reduction of natural resources exhaustion. The controlled storing constitutes today the main channel of waste – domestic waste, mostly – treatment at the world level.

The final link of every antropic activity, the wastes represent a great problem for the protection of the environment on the world scale, owing to their accumulation in great amounts during the passing of years and to their more or less adequate elimination.

1. INTRODUCTION

The sustainable development represents the purpose of all continuous social and economic development strategies and politics in which the determination of the environment quality determination and the reduction of the natural resources that the future human activity depends on occupy a central place [2, 3].

The practical recommendations required for a sustainable development are [1]:

- the efflux of the needed substances should be managed in order to facilitate and encourage recycling, thus avoiding the waste and the exhaustion of the natural resources;

- the consume in the society and the lifestyle should be consequently changed.

In this context, the wastes management has an important part, since it represents not only a potential pollution source, but it may become an important source of secondary raw materials, as well as an energy source [4, 5, 6, 7].

The modern strategy regarding the administration of wastes includes a hierarchy of their management options where the focus is on the prevention of wastes production. This is followed by the promotion of the recycling and re-using of wastes and then by the optimization of the final storage methods of the wastes.

Table 1. The scheme of the waste management strategy.

I. THE PRINCIPLES OF THE WASTES MANAGEMENT		
RECOVERY	PREVETION	STORAGE
From the produced wastes	Of the wastes production	In safety
Separation and sorting	By technologies: clean technologies	Reduction of the wastes quantity that must be stored
Selective collection	By avoiding: re-using	Rigorous standards regarding the storage conditions
Materials recycling	By behavior changing	
Energy recovery	Producer and user	
↓	↓	↓
II. REGULATIONS FRAMEWORK		
GENERAL	**SPECIFIC**	Management operations and

APPLICATIONS	**APPLICATIONS**	technical standards for:
Framework directives for wastes	For special wastes	- wastes incineration
Directives for dangerous wastes	Directives for: Wastes courses	- storage
Regulations regarding the control of wastes cargos	Used oils: - used tires halogenated solvents used waters	
Directives proposals regarding the civil responsibility for the environment deterioration	- wastes coming from constructions packages - wastes coming from hospitals batteries - urban wastes	

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III. OBJECTIVES
Strict implementation of legislation by:

Secure data regarding

a. - Production of wastes and characteristics - facilities for wastes treatment	**b.** Wastes management	**c.** Minimization of the of storage places	**d.** Establishment of change recycling circuits and opening of market options for

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IV. ACTIONS

a. Data banks creation for: - quantities of wastes and characteristics - facilities for wastes treatment	c. Development of ecological balances for the evaluation of wastes management alternatives	e. Development and promotion of the: - clean technologies - eco-products - sorting and separation systems - recycling circuits - safe storage procedures
b. Establishment of integrated management systems: plans, networks, facilities	d. Development and application of the economic instruments especially designed for the wastes management	g. Development and application of the community instruments for the financial support

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V. EVALUATION OF THE WASTES MANAGEMENT POLITICS
Feedback
Regulations, instruments and actions improvement

2. THE WASTE SELECTION AND GATHERING

The waste selection represents the process of waste separation and classification depending on the differences between their physical features. The environmental European policy stipulates that the waste selection in unique fractions should be made as far as possible at the source.

Selection types: dimensional, densimetric, optical, magnetic and manual.

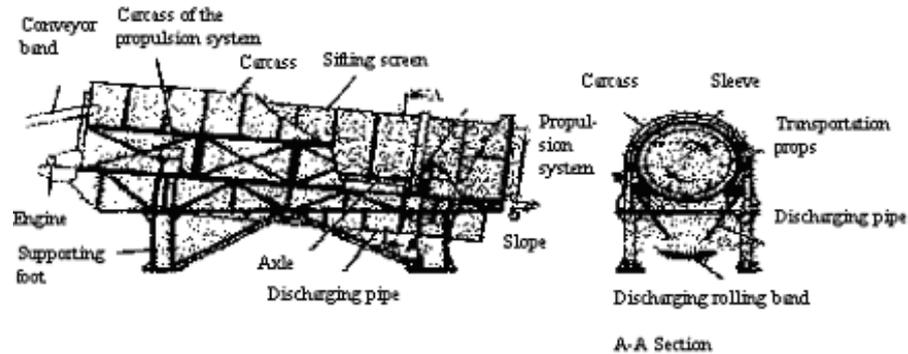The following figure presents the screen drum used for the waste dimensional selection.

(Fig.1) [2].

Fig. 1. View and section of a screen drum

The volume and the performances at the separation of a bolter are determined depending on the dimensions of the orifices, the size of the wastes granule, the revolution, the elements from the interior of the drum as well as its inclination.

The waste classification through densimetric selection represents a method based on the specific equivalence of similar materials within a current of ascendant air.

In this case the particle selection is done depending on the falling speed of the particles which depends on their specific weight and shape.

In the EU there were tested a great number of separators for densimetric selection. Among these, in the waste processing the following are used: the rotating separator with air current and suction installation.

The following figure presents the rotating separator with compressed air current. (Fig. 2) [2]
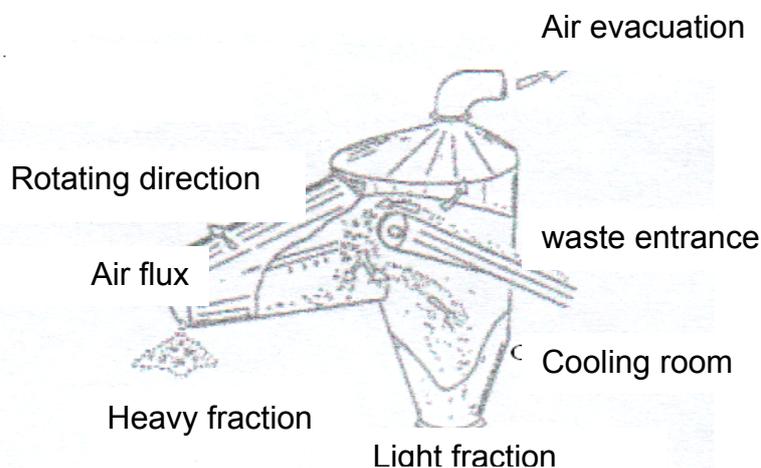
Fig. 2. The functioning diagram of a rotating separator with air current

The grinding wastes are transported with a conveyor band to the superior part of the drummer. The compressed air enters the separator through the air nozzles. The light friction of the wastes is stimulated upwards to the decantation chamber. The heavy friction is carried on through the drummer and eliminated through the little base of it. Through the little base of the drummer is introduced additional air to assure a continuous air current.

The modification of the inserted air volume, the compressed air pressure, the inclination angle of the drummer and of the way of loading of the grinded material determines the size modification of the particle granulation.

The following presents the magnetic separator where the waste selection is made with magnets situated over the conveyor bands (Fig. 3) [2].
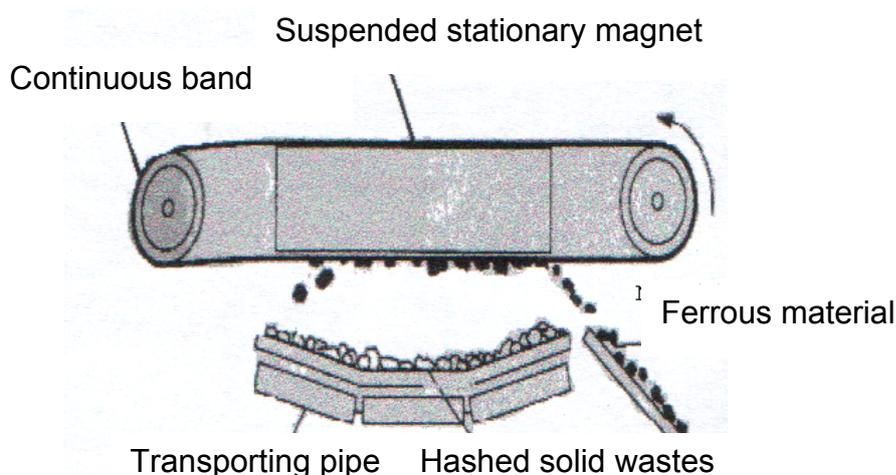

Fig. 3. Magnetic separator

For the planning of the technical systems of waste gathering, Romania takes into consideration the following [1, 2, 3]:
- The residential structure types;
- Residential house types;
- The road access for the gathering vehicles;
- The adoption by the population of the new gathering systems.

If taken into consideration the estimation of the general waste quantities, at present it is implemented the selective waste gathering that constitutes the most advantageous way for the waste valorization.

3. RECYCLING AND VALORIFICATION

The industrial activities involved in the process of recycling and reutilization have a profitable character. The ecological criteria agreed in the field of waste administration are the ones imposed by the environmental legislation.

The adoption for processing of some external wastes for recycling or the processing and supplying of one owns wastes to a external user are activities that may have a profitable economic effect on the long term for the economic results of the company that accomplishes them.

The organization of some industrial supplier/acceptor companies of industrial wastes in areal networks of recycling, represents a way of materializing of one owns economical, logistic and technical programs of evaluating the process of valorization [2, 6].

For the adoption of the legislative norms the industry and the public communities have to apply new strategies of administration on the long term as compromise activities between the economic, technical and ecologic factors.

The changing speed of the technological systems cannot grow indefinitely and the Figure 4 presents a change variant that agrees with the policy of permanent development.
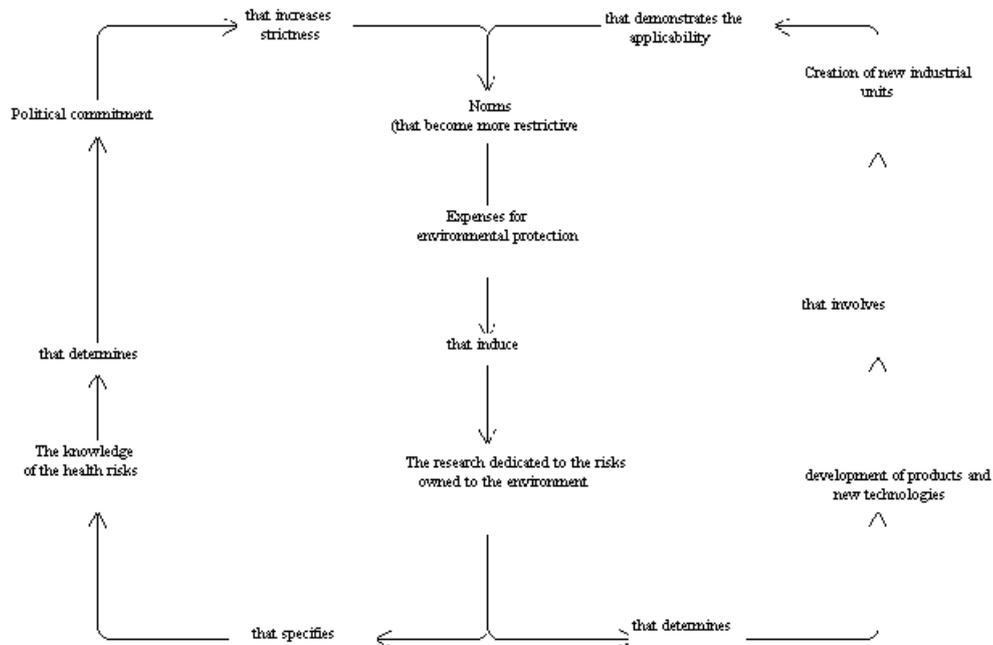

Fig. 4. The influence of the legislative norms over the recycling and environmental protection technologies

4. WASTE STORING

The controlled storing constitutes the main global treatment channel of domestic wastes, presented in Figure 5 [1].
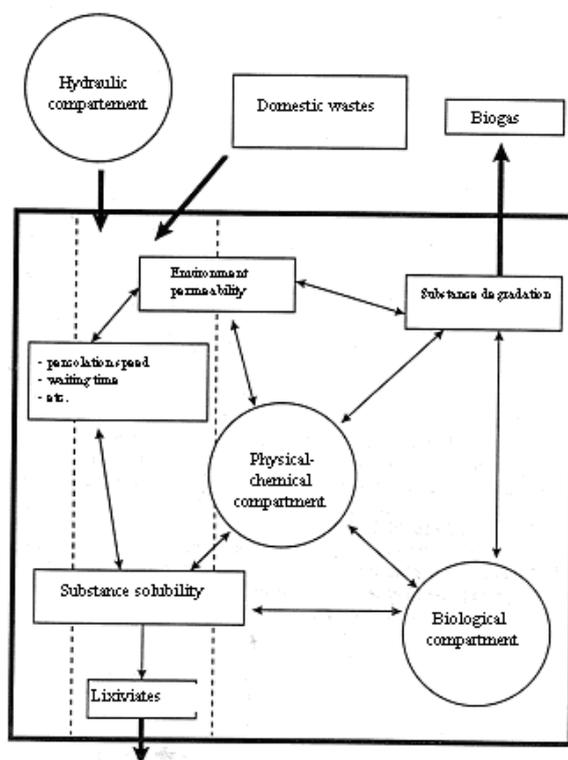
Fig. 5. The waste storing. A complex multi partitioned reactor.

5. CONCLUSIONS

In the conditions of modern economies, the wastes are no longer representing residues resulted from antropic activities but real raw material and energy sources. The development of a strategy regarding a judicious wastes administration relying on statistical records is of utmost importance for an integral use of the resources, their directing toward fields that assure superior valorization and elimination of material and energetic loss.

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